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Statement of the Problem and Research Hypothesis

**Statement of the Problem**

International mathematics assessments indicate that United States students consistently rank far behind their peers in similarly developed countries. New techniques that eschew tried and true math teaching methods are a key source of the disparity. Education reformers, representing the education establishment, believe the learning "process" is more important than memorizing core knowledge. They see self-discovery as more important than getting the right answer. Traditionalists, consisting mainly of parent groups and mathematicians, advocate teaching the traditional algorithms. They advocate clear, concrete standards based on actually solving math problems. The destination - getting the right answer - is important to traditionalists.

The textbook that has become the gold standard for reformers is called *Everyday Math*. It is deeply flawed in its approach. Researchers have found that it does not teach addition with regrouping and instead uses cumbersome, time-consuming, less efficient, more laborious, non-standard "partial sums" method. It also discourages the practice of standard algorithms for multiplication and division. Here too it incorporates cumbersome, time-consuming, less efficient, more laborious, unduly complicated "extended facts," "partial products," and "lattice" methods. A formal introduction to division algorithms is not included and crutches (e.g., counters, arrays, drawings) in division are never dropped.

**Research Hypothesis**

At the end of the school year, two groups (~28 *n*) of fourth grade students will be tested in their proficiency in multiple digit multiplication and long division. In the control group, students who used the textbook *Everyday Math* will be gauged on the accuracy of their answers and average rate (time) of completion. A research group will consist of another class that utilized a book with traditional algorithms such as *SRA Real Math* or *Saxon Math*. Students who studied traditional algorithms are expected to yield higher scores and exhibit in a shorter average amount of time for completion.